

2/2 016

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0116823

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTS. HAVE BEEN CARRIED OUT WITH STEEL CASTINGS (0.3PERCENTC) OF DIFFERENT SHAPES AND CROSS SECTION AREAS, TO DET. THE EFFECT OF SHRINKAGE ON THE SURFACE PROCESSES OCCURRING DURING THE COOLING PERIOD (1200-800DEGREES) IN A SAND MOLD. AMONG OTHER FACTORS, SCAB FORMATION IS INFLUENCED BY THE TIME OF CONTACT BETWEEN THE HOT METAL AND THE MOLD SURFACE; HERE THE DIRECTION AND AMT. OF SHRINKAGE ARE IMPORTANT. THE CHARACTER OF THE SCAB FORMS AND DIFFICULTIES INVOLVED IN THEIR REMOVAL ARE DISCUSSED ON THE BASIS OF THE POSITION OF THE CASTING SURFACE UNDER CONSIDERATION, WITH RESPECT TO THE MOLD, THE CHARACTERISTICS OF THE MOLDING SAND, THE INTENSITY OF OXID., AND OF SILICATE FORMING PROCESSES AT THE SURFACE.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--HEMOPOIESIS IN NONSPECIFIC ULCEROUS COLITIS -U-
AUTHOR--CHERNOGRYAZSKAYA, N.P.
COUNTRY OF INFO--USSR
SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 5, PP 42-44
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--HEMATOPOESIS, LARGE INTESTINE, LESION, DIGESTIVE SYSTEM
DISEASE, ANEMIA, DIAGNOSTIC MEDICINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1998/0015 STEP NO--UR/0504/70/042/005/0042/0044
CIRC ACCESSION NO--AP0120715
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120715

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR STUDIED HEMOPOIESIS IN PATIENTS WITH NON SPECIFIC ULCEROUS COLITIS. THE PRIPHERAL BLOOD WAS STUDIED IN 180 PATIENTS, MYELOGRAM, IN 25. IT WAS ESTABLISHED THAT NON SPECIFIC ULCEROUS COLITIS WAS OFTEN COMPLICATED BY DEVELOPMENT OF HYPOCHROMIC, HYPOGENERATIVE, HYPOFERRIC ANEMIA. DELAY OF HEMOGLOBINIZATION OF NORMOBLASTS AT THE STAGE OF BASOPHIL AND POLYCHROMATOPHIL NORMOBLASTS WAS DETECTED IN THE MAJORITY OF PATIENTS. THE INCREASE IN THE ERYTHROCYTE COUNT AND A SHIFT IN THE LEUCOCYTARY FORMULA TO THE LEFT IS DIRECTLY DEPENDABLE UPON THE MARKEDNESS OF THE DESTRUCTIVE PROCESS IN THE INTESTINE. THE INCREASE IN THE PLASMOCYTE COUNT, THE PRESENCE OF PLASMOCYTIC ISLANDS AND EOSINOPHILIA TESTIFY TO THE PRESENCE OF ALLERGY IN NONSPECIFIC ULCEROUS COLITIS. THE PATHOLOGICAL CHANGES OF THE PERIPHERAL BLOOD AND BONE MARROW IN NONSPECIFIC ULCEROUS COLITIS DEPEND UPON THE CLINICAL FORM, SEVERITY OF THE COURSE, STAGE OF THE DISEASE ACTIVITY AND ARE NOT ASSOCIATED WITH THE DURATION OF THE DISEASE. FACILITY: LABORATORIYA PISCHEVARENIYA I OBMENA VESHCHESTV INSTITUTA AKUSHERSTVA I GINEKOLOGII AMN SSSR, LENINGRAD.

UNCLASSIFIED

USSR

UDC 591.1.15

PIKULEV, A. T., GURKO, A. V., ZHIGALKOVICH, N. V., KHRIPCHENKO, I. P.,
and CHERNOGUZOV, V. M.

"On the Mechanism of the Action of Ionizing Radiation on the Activity of
Aminotransferase in the Brain of White Rats"

Nauch. dokl. vyssh. shkoly. Biol. n. (Scientific Papers of the University.
Biological Sciences), 1971, No 9, pp 43-48 (from RZh-Biologicheskaya
Khimiya, No 2, 25 Jan 72, Abstract No 2F272)

Translation: The rate of transamination processes catalyzed by the alanine-
and aspartate-aminotransferase enzyme system is disrupted in rat brain under
the effect of X-radiation in a dose of 700 roentgens. This is due to a change
in the activity of the given enzymes in individual subcellular fractions of
the brain, and also to discoordination in the transamination system which is
especially pronounced on the first and seventh days after exposure to radia-
tion. Résumé.

1/1

C
Radiobiology

USSR

UDC 577.15

CHERNOGUZOV, V. M. and PIKULEV, A. T., Belorussian State University

"The Effect of X-Ray Irradiation on Aspartate Aminotransferase Activity in Brain Mitochondria"

Minsk, Doklady Akademii Nauk BSSR, No 4, 1970, pp 367-369

Abstract: Whole-body, single X-ray irradiation of rats with 40 r increased the activity of soluble aspartate aminotransferase in brain mitochondria within 24 hours by 21% compared with the control. This increase was at the expense of the bound form of the enzyme, because total aspartate aminotransferase activity in the mitochondria remained unchanged. The observed phenomenon is ascribed to partial liberation of the bound form of aspartate aminotransferase, due to physicochemical changes in the properties of the mitochondria brought about by ionizing radiation.

1/1

USSR

UDC 547.26.119 + 543.422

GAMAYUROVA, V. S., KUZ'MIN, V. K., CHERNOKAL'SKIY, B., D., and SHAGIDULLIN, R. R., Kazan' Chemical Technological Institute Imeni S. M. Kirov

"Spirocyclic Esters of Arsonic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 1937-1939

Abstract: New esters of arsonic acids and dihydric aliphatic glycols have been synthesized. The reaction consisted of refluxing a mixture of the appropriate substituted arsonic acid, ethylene glycol and benzene in a system equipped with a Dean-Stark trap. The cyclic structure of these esters has been confirmed by IR spectral data.

1/1

- 16 -

USSR

UDC 541.127.547.242

CHERNOKAL'SKIY, B. D., and VOROB'YEVA, L. A., Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Basicity of Tertiary Arsine Oxides and the Kinetics of Their Reactions With Alkyl Halides"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 1939-1943

Abstract: Thermodynamic basicity constants of five tri-n-alkylarsine oxides in water were determined. It was shown that in this case the size of the hydrocarbon radical has no effect on pK^T . It was found that the reaction of tri-n-alkylarsine oxides with butyl iodide is of a general second degree order, but first degree order in respect to the trialkylarsine oxide. The relationship of the reaction rates of trialkylarsine oxides and the structures of alkyl halide is analogous to that of the S_N2 reactions.

1/1

USSR

UDC 547.242

GEL'FOND, A. S., GALYAMETDINOV, YU. G., MIRONOVA, V. G., GATAULLINA, R. KH.,
and CHERNOKAL'SKIY, B. D., Kazan' Chemical-Technological Institute Imeni
S. M. Kirov

"Synthesis of Some Tertiary Arsines and Their Sulfides"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 1962-1963

Abstract: A series of p- and m-substituted oxides and sulfides of aryldiethyl-
and aryldiphenylarsines has been synthesized by known methods. Yields and
melting points are tabulated.

1/1

USSR

UDC 547.242

GAVRILOV, V. I., KHLEBNIKOV, V. N., GAVRILOVA, G. R., and CHERNOKAL'SKIY, B. D.,
Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Synthesis of 10-Alkylphenoxyarsines"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 1963-1966

Abstract: A series of new 10-alkylphenoxyarsines was synthesized by reacting appropriate alkylmagnesium halides with 10-chlorophenoxyarsine in benzene or toluene solution. Following compounds were obtained and characterized: 10-propyl-, isopropyl-, n-butyl-, 2-methylpropyl-, tert-butyl-, n-amyl-, 3-methylbutyl-, n-hexyl-, n-heptyl-, n-octyl-, cyclohexyl-, allyl-, benzyl-, and phenylacetylenylphenoxyarsines.

1/1

- 8 -

USSR

UDC 541.13:541.515:543.422.27

IL'YASOV, A. V., KARGIN, YU. M., MOROZOVA, I. D., CHERNOKAL'SKIY, B. D.,
VAFINA, A. A., MEL'NIKOV, B. V., GEL'FOND, A. S., MUKHTAROV, A. SH., and
GALYAMETDINOV, YU. G., Institute of Organic and Physical Chemistry Imeni A. Ye.
Arbuzov, Acad. Sc. USSR, and Kazan' Chemical-Technological Institute Imeni S. M.
Kirov

"Electrochemically Generated Free Radicals. 9 Communication. Reduction of Some
Nitrophenylarsine Derivatives and EPR Spectra of Their Anion Radicals"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 72,
pp 2174-2178

Abstract: The mechanism of polarographic reduction of nitrophenyldiethylarsines
and their oxides and sulfides in an aprotic medium was studied. These compounds
exhibit two reduction waves, the first one corresponding to a one-electron wave,
the process being reversible. The second wave is typical of a 3e-process. A
diagram for the sequential chemical processes of these compounds after the
capture of second electron has been proposed. Both waves represent a stepwise
oxidation of the unstable dianion of the substituted nitrobenzene; the phenyl
ring -- arsenic system remains untouched in this process. Novel organoarsine
anion radicals have been obtained by electrochemical reduction and studied by
the EPR method. Delocalization of the unpaired electron in these anion
1/2

USSR

IL'YASOV, A. V., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 72, pp 2174-2178 (5)

radicals has been investigated analyzing possible reasons for a considerable decrease of the spin density on the arsenic atom during the transition from tetracoordinated arsenic atom of the anion radicals to a tri-coordinated one.

2/2

- 43 -

USSR

UDC 546.19 + 541.124.7

TSENTOVSKIY, V. M., GAMAYUROVA, V. S., ZAGIDULLINA, D. Sh., and
CHERNOKAL'SKIY, B. D., Kazan' Chemical Technological Institute Imeni
S. M. Kirov

"Ionization Constants of Arylarsonic Acids in Nonaqueous Media"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 12, Dec 72, pp 2702-2705

Abstract: The pK of eight arylarsonic acids were determined in nonaqueous media -- dimethylformamide [DMFA] and dimethylsulfoxide [DMSO] by means of potentiometric titration. In both the DMFA and DMSO arylarsonic acids titrate as monobasic acids with the exception of nitrohydroxyphenylarsonic acid which acts as a dibasic acid in DMSO. Depending on the substituent in the phenyl ring, the acid strength diminishes in the following order: $\text{NO}_2 + \text{OH} > \text{NO}_2 > \text{H} > \text{CH}_3 > \text{CH}_3\text{O}$ NH_2 . Ortho substituted nitro- and amino-phenylarsonic acids are weaker than their para substituted analogs. Analyzing the pK values in different media shows that the arylarsonic acids increase in strength going from DMFA to DMSO to water. In comparison to water, DMFA and DMSO exert a differentiating action on arylarsonic acids.

1/1

USSR

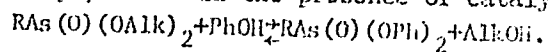
UDC 547.26.119

GAMAYUROVA, V. S., KRALICHKINA, M. G., ~~CHERNOKAL'SKIY, B. D.~~, Kazan' Chemical Technological Institute imeni S. M. Kirov

"Synthesis of Aromatic Esters of Arsonic Acids"

Ivanovo, Izvestiya vysshikh uchebnykh zavedeniy, Khimiya i khimicheskaya tekhnologiya, Vol XV, No 7, 1972, pp 1023-1026

Abstract: A study was made of the possibility of synthesizing aromatic esters of arsonic acids. Direct esterification of these acids by phenols did not lead to the expected products, but transesterification of the dialkyl esters of arylarsonic acids by phenols in the presence of catalysts was successful:



The alkyl esters of the arsonic acids were obtained by the Kolditz-Hass method [*Z. anorgan. und allgem. Chem.*, No 307, 304, 1961]. Transesterification of the dialkyl esters of the arylarsonic acids was performed in xylenes, which make the reaction possible at a comparatively high temperature and form azeotropes with the aliphatic alcohols. Sodium phenoxide and also perchloric acid, sulfuric acid and glacial acetic acid were used as catalysts. Glacial acetic acid was the best catalyst. The synthesized aromatic esters and some of their properties are tabulated the lowest representatives of the series of 1/2

- 17 -

USSR

GAMAYUROVA, V. S., et al., Izvestiya vysshikh uchebnykh zavedeniy, Khimiya i khimicheskaya tekhnologiya, Vol XV, No 7, 1972, pp 1023-1026

compounds are high-boiling, viscous and very hygroscopic liquids. The crystalline esters were isolated with almost quantitative yield and are highly hygroscopic. The infrared spectrum taken for the diphenyl ester of n-tolylarsonic acid confirms its proposed structure.

2/2


USSR

UDC 542.945+542.957.2+547.852.7

KAMAY, G. Kh. [decd.], ~~CHEPNOKAL'SKIY, B. D.~~, GAVRILOV, V. I., TSENTOVSKIY, V. M., and TSENTOVSKAYA, V. S.; Kazan' Chemico-technological Institute imeni S. M. Kirov

"Quantitative Separation of the Combined Effect of the Substituent in Para-Substituted 10-Aryl-5,10-Dihydrophenarsazine Oxides"

Kiev, Teoreticheskaya i Eksperimental'naya Khimiya, Vol 8, No 3, 1972, pp 400-402

Abstract: Quantitative evaluation was carried out of the transmission of the effect of the substituent, through the induction and polar conjugation effects, in para-substituted 10-phenyl-5,10-dihydrophenarsazine oxides (I), on the protonation of oxygen at the arsenic atom. By solving the equation correlating the basicity of I with σ^0 and σ_R^+ constants of substituents it was shown that the transmission of the effect of the substituent is effected mainly by the induction effect, with a certain direct polar conjugation of the substituent and the reaction center in the system (X) —  — As —> (O).

1/1

- 18 -

USSR

UDC 547.26*119

GIGAURI, R. D., CHACHAVA, G. N., ~~CHEBNOVAL'SKIY, R. D.~~, UGULOVA, M. M.,
Tbilisi State University; Kazan' Institute of Chemical Technology imeni S. M.
Kirov

"Synthesis of Diphenylalkylarsines"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1537-1540

Abstract: The effect of Grignard's reagent on diphenylarsine oxide was studied. It was found that this reaction produces diphenylalkylarsines in low yields. Phenylmagnesium bromide reacted with arsenous acid anhydride to give diphenylchloroarsine in high yield after dissociation with excess hydrochloric acid. Grignard's reagent acted on diphenylchloroarsine to give the corresponding diphenylalkylarsines. The mean atomic refraction of arsenic in diphenylalkylarsines was calculated. It was found that in these compounds $AR_2As = 12.10$.

1/1

USSR

UDC 542.945:542.957.2:547.852.7

KAMAY, G. KH. (DECEASED), GAVRILOV, GAVRILOV, V. I., GUSEV, A. I., B. D.,
Kazan' Institute of Chemical Technology imeni S. M. Kirov

"Basicity of Para-Substituted 10-Aryl 5, 10-Dihydrophenarsazine Oxides"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1530-1534

Abstract: The ionization constants of seven para-substituted 10-aryl-5,10-dihydrophenarsazine oxides, and their relation to the Hammett sigma constants of the substituents were determined. It was shown that when acid acts on 10-p-dimethylaminophenyl-5,10-dihydrophenarsazine oxide in an alcohol-water medium, the As \rightarrow O is protonated first, followed by the nitrogen in the dimethylamino group. 10-p-Fluorophenyl-5,10-dihydrophenarsazine and its oxide were synthesized for the first time.

1/1

- 32 -

USSR

UDC 541.127+547.242+547.224

CHERNOKAL'SKIY, B. D., YENIKEYEV, Sh. G., BAYRAMOV, R. B., KAVIYEV, A. K.,
and KAMAY, GIL'M, Kazan' Chemical-Technological Institute imeni S. M. Kirov

"Electrical Conductivity of the Reaction Mixture and Rates of the Elementary Stages of the Reaction of Triphenylarsine Oxide with Butyl Iodide"

Leningrad, Zhurnal Obshchey Khimii, Vol XL, No 12, Dec 70, pp 2648-2653

Abstract: It was demonstrated that in the reaction between triphenylarsine oxide and butyl iodide, there is an intermediate stage in which triphenylbutoxyarsonium iodide is formed; the variation in the concentration of this intermediate product during the course of the reaction was approximately determined.

The reaction constants were then determined by solution of the variation problem with use of electronic computers, for the elementary stages of the reaction.

1/1

USSR

UDC 547.242+546.19:546.221

KAMAY, G. Kh. (Deceased), CHERNOKAL'SKIY, B. D., and LEVENSHTeyN, I. B.,
Kazan' Institute of Chemical Technology imeni S. M. Kirov

"Feasible Mechanism for the Reaction of Tertiary Arsine Sulfides With
Alkyl Halides"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 2015-2020

Abstract: The purpose of this study was the synthesis of alkylarsonium salts and other products of the reaction $R_3AsS + AlkI \rightarrow [R_3AsAlk]I$. It is shown that the formation of quaternary arsonium salts by the reaction of tertiary arsine sulfides with alkyl halides is common for both triaryl- and trialkyl arsine sulfides. The other reaction products, in addition to tertiary arsines and arsonium salts, include dialkyl disulfides and trialkylsulfonium halides. The conversion of alkylthioarsonium to tertiary arsine is effected by the halogen anion. The mechanism of the reaction is discussed.

1/1

USSR

UDC 546.26.119

KAMAY, G. Kh. (deceased), ABALONIN, B. Ye., CHERNOKAL'SKIY, B. D., IZOSIMOVA, S. V., and SHAGIDULLIN, R. R., Kazan' Chemical Technological Institute imeni S. M. Kirov, and Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Acad. Sc. USSR

"Reaction of bis-(Dialkylarsine)-oxides With Alkyl Iodides"

Izvestiya VUZ -- Khimiya i Khimicheskaya Tekhnologiya, Vol 14, No 5, 1971, pp 724-727

Abstract: Bis-diethylarsine)-oxide reacts energetically with benzoic and acetic acyl chlorides yielding in the first case a mixed anhydride of diethylarsinous and benzoic acids, the products of the second reaction being inseparable. Reaction of bis-(diethylarsine)-oxide with alkyl halides is more complex: with ethyl iodide a crystalline product is obtained from which a careful workup yields tetraethylarsonium iodide, ethyl ester of diethylarsinous acid and diethyliodoarsenic. Diethyliodoarsenic in turn can react with ethyliodide yielding triethylarsine diiodide. Reactions with methyl iodide are so vigorous that a solvent is recommended. Diphenylarsine oxide, however, even after heating for 2 hrs to 100° was recovered unchanged.

1/1

USSR

UDC 546.26'119

CHERNOKAL'SKIY, B. D., ABALONIN, B. Ye., SHAGIDULLIN, R. R., IZOSIMOVA, S. V.,
and KAMAY, GIL'M, Kazan' Chemical-Technological Institute imeni S. M. Kirov

"Reaction of the Esters of Arsenious Acids with Alkyl Halides"

Leningrad, Zhurnal Obshchey Khimii, Vol XL, No 12, Dec 70, pp 2645-2648

Abstract: It was demonstrated earlier by several of the authors that during the reaction of the esters of arsenious acids with alkyl halides, instead of the expected alkoxyarsonium salts, quaternary arsonium salts are formed; it was of interest to study the effect of the structure of the starting ester on that of the final product.

A series of esters of several arsenious acids were studied for this purpose; these differed with regard to the nature of the hydrocarbon radical of the ester group. It was shown that the hydrocarbon radical of the alkoxy group in no case enters into the composition of the arsenious salt formed.

1/1

- 77 -

USSR

UDC 547.242+546.19:546.221

CHERNOKAL'SKIY, B. D., LEVENSHTeyN, I. B., and KAMAY, G. Kh., (deceased)
Kazan' Chemical-Technological Institute imeni S. M. Kirov

"Synthesis of Alkylthioarsonium Salts"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 3, Mar 71, pp 557-559

Abstract: Reactions of triethyl- and tripropylarsine sulfides with alkyl halides were studied at room temperature either in benzene or in an excess of the alkylating reagent. Reactions lasted from 5.5 hrs to several days, yielding trialkylalkylthioarsonium salts -- hygroscopic crystalline compounds soluble in acetone and methylene chloride but insoluble in ether and benzene. Above sulfides as well as the triphenylarsine sulfide react with trialkyloxoniumtetrafluoroborates forming alkylthioarsonium salts.

1/1

- 41 -

USSR

UDC 542.945+542.957.2+547.852.7

GAVRILOV, V. I., ~~CHERNOKAL'SKIY, B. D.~~, and KAMAY, G. Kh., (deceased), Kazen' Chemical-Technological Institute imeni S. M. Kirov

"Arsenic-Carbon Bond Break in Derivatives of 5,10-Dihydrophenarsazine During Reactions With Hydroiodic Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 3, Mar 71, pp 560-564

Abstract: Reaction of 10-alkyl-5,10-dihydrophenarsazine oxides with hydroiodic acid leads to a bond break between arsenic and carbon atom yielding 10-iodo-5,10-dihydrophenarsazine. Hydroiodic acid also breaks down 10-isopropyl-5,10-dihydrophenarsazine oxide yielding diphenylamine. On heating in benzene the diiodides of 10-alkyl(or aryl)-5,10-dihydrophenarsazines are converted to 10-iodo-5,10-dihydrophenarsazines. Reaction of ethyldibromoarsine with 10-ethyl-5,10-dihydrophenarsazine yields 10-bromo-5,10-dihydrophenarsazine.

1/1

USSR

UDC 547.242+546.19:546.221

CHERNOKAL'SKIY, B. D., LEVENSHTeyN, I. B., and KAMAY, G. Kh., (deceased)
Kazan' Chemical-Technological Institute imeni S. M. Kirov

"Synthesis of Alkylthioarsonium Salts"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 3, Mar 71, pp 557-559

Abstract: Reactions of triethyl- and tripropylarsine sulfides with alkyl halides were studied at room temperature either in benzene or in an excess of the alkylating reagent. Reactions lasted from 5.5 hrs to several days, yielding trialkylalkylthioarsonium salts -- hygroscopic crystalline compounds soluble in acetone and methylene chloride but insoluble in ether and benzene. Above sulfides as well as the triphenylarsine sulfide react with trialkyloxoniumtetrafluoroborates forming alkylthioarsonium salts.

1/1

- 41 -

USSR

UDC 547.242

ABALONIN, B. YE. CHERNOKAL'SKIY, B. D., SHAGIDULLIN, R. R.,
IZOSENOVA, S. V., ZYKOVA, T. V., KAMAY GIL'M (DECEASED), Kazan
Chemical-Technological Institute imeni S. M. Kirov, Kazan, Ministry
of Higher and Secondary Specialized Education RSFSR, and Institute
of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy
of Sciences USSR

"The Products of the Reaction of Arsinous Acid Esters With Alkyl
Halides"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 8, Aug 70,
pp 1812-1817

Abstract: The reactions were carried out by one of two methods:
a) ethyl ether of diethylarsinous acid and ethyl iodide were kept
in an ampule under CO₂ atmosphere for 120 hours at room temperature,
the precipitated tetraethylarsonium iodide was recrystallized
from an etherealcohol mixture and showed a m.p. of 291°; or b) the
same mixture was heated to 100° for 2 hours in an ampule under CO₂
atmosphere, yielding the same product. By these reactions other
alkyl halides reacted with esters of dialkyl- and phenylalkylar-
1/2

USSR

ABALONIN, B. YE., et al, Zhurnal Obshchey Khimii, Vol 40, No 8, Aug 70, pp 1812-1817

sinous acids. Examination of the products by means of IR and PMR spectroscopy showed that no alkoxy groups are present in these products. It was determined that in the above reactions only the tetraalkyl- and trialkylphenylarsonium salts are formed. Tetraethyl arsonium iodide reacted with magnesium perchlorate underwent an exchange reaction yielding tetraethylarsonium perchlorate m.p. 291°.

2/1

USSR

UDC: 547.242

CHERNOKAL'SKIY, B. D., GEL'FOND, A. S., and KAMAY, GIL'M, Kazan' Institute of Chemical Technology imeni S. M. Kirov

"Kinetics of the Reaction of Aryldialkylarsine Oxides with Butyl Iodide"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 1, Jan 70, pp 151-156

Abstract: Heating (p-substituted phenyl) diethylarsine oxides, where a nitro-group, bromine, or iodine are the substituents, with methyl, ethyl, or isopropyl iodides in acetone yielded a precipitate, after 24-30 hours, aryldiethyl (aryldiethylhydroxyarsoxy) arsonium iodides (I), which crystallized in 25-69% yields. A similar reaction of (p-dimethylaminophenyl) diethylarsine oxide (II) with isopropyl iodide gave a different product, (p-dimethylaminophenyl) diethylhydroxyarsonium iodide in 64% yield. Reactions of phenyldiethylarsine oxide or its p-tolyl analog with alkyl iodides gave noncrystallizing syrups. Kinetic measurements, carried out at 50°, indicated second- and third-order kinetics.

1/1

- 22 -

USSR

UDC:547.242 + 546.19:546.221

CHERNOKAL'SKIY, B. D., LEVENSHTeyN, I. B., and KAMAY, G. Kh., Kazan' Institute of Chemical Technology imeni S. M. Kirov

"Products of the Reaction of Triphenylarsine Sulfide with Alkyl Halides"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 1, Jan 70, pp 148-151

Abstract: The mechanism of the title reactions was studied, because stability of the arsenic-aryl bond in pyrolytic processes is higher than that of the arsenic-alkyl bond. The main product of the reactions of triphenylarsine sulfide with methyl, ethyl, or propyl iodides was alkyltriphenylarsonium triiodide (I). Alkyltriphenylarsonium iodide crystals were also separated, along with I, but in lower yields from the reaction products with methyl and ethyl iodides. In one instance, 5% triphenylarsine was separated in the reaction with ethyl iodide. All alkyltriphenylarsonium iodides were obtained in crystal form. Triiodide I heated with mercury in acetone gave after several hours crystals of alkyltriphenylarsonium triiodomercurate (II) in 42-70% yields. Also, methyltriphenylarsonium tetraiodomercurate crystals were separated (yield 22.8%) from the reaction product, probably because of disproportionation of II during crystallization. Melting points of the above mercury compounds were determined.

1/1

USSR

UDC:541.127 + 547.242 + 547.224

~~CHERNOKAL'SKIY~~, B. D., BAYRAMOV, R. B., and KAMAY, GIL'M, Kazan' Institute of Chemical Technology imeni S. M. Kirov

"Mechanism of the Reaction of Triphenylarsine Oxide with Butyl Iodide"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 1, Jan 70, pp 143-148

Abstract: A study was made of the mechanism of triphenyl- (triphenylhydroxyarsoxy) arsonium iodide (I) formation from triphenylarsine oxide and butyl iodide. The experimental electroconductivity data of the equimolar mixtures of reactants in acetone solution made it possible to conclude that the reaction proceeds in two steps. In the first (a) step triphenylbutoxyarsonium iodide (II) is reversibly formed. Subsequently II irreversibly reacts (b step) with an additional mole of triphenylarsonium oxide to form I. The fact that concentration of I in acetone at 50° remained constant during the six hours of passing 1-butene through the solution was seen as confirmation of irreversibility of step b of the reaction.

1/1

USSR

UDC 547.852.7+542.945+542.957.2

GAVRILOV, V. I., BATINA, L. A., CHERNOKAL'SKIY, B. D., and KAMAY, G. Kh.,
(deceased), Kazan' Chemical-Technological Institute imeni S. M. Kirov

"Reaction of Tertiary Arsine Oxide of the Dihydrophenarsazine Series With
Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 3, Mar 71, pp 564-567

Abstract: It was determined that the hydrochloric, hydrobromic and trichloroacetic acids as well as pentachlorophenol form adducts with 10-alkyl-(aryl)-5,10-dihydrophenarsazine oxides (I) in aqueous alcohol medium or in benzene. To a heated ethanol solution of (I) the above reagents were added in 10 ml water; the solution was heated for 15 min, the volume was concentrated to 1/2-1/5 and cooled. A colorless crystalline product was obtained -- the adduct mentioned above --, it was filtered, dried and recrystallized from ethanol. It was also shown that (I) could be titrated with HCl in a mixture of acetic acidacetic anhydride.

1/1

- 40 -

Acc. Nr: **AP0049139** — Abstracting Service:
CHEMICAL ABST. 5-70

Ref. Code:

4R0079

100850g Kinetics of the interaction of arylalkylarsine oxides with butyl iodide. Chernobylskii, B. D.; Gel'fond, A. S.; Kamai, G. (Kazan. Khim.-Tekhnol. Inst. im. Kirova. Kazan, USSR). Zh. Obshch. Khim. 1970, 40(1), 151-6 (Russ). Heating 1 g $p\text{-O}_2\text{NC}_6\text{H}_4\text{AsEt}_2\text{O}$ 28 hr with 1.7 g iso-PrI in Me_2CO gave 69% p -nitrophenyldiethyl(p -nitrophenyldiethylarsoxy)-arsonium iodide, m. 125°. Similarly was prepd. the p -bromophenyl (m. 126-7°) and p -chlorophenyl analogs, m. 125-6°. Reaction with $p\text{-Me}_2\text{NC}_6\text{H}_4\text{AsEt}_2\text{O}$ gave $p\text{-Me}_2\text{NC}_6\text{H}_4\text{AsEt}_2\text{O}\cdot\text{HI}$, m. 107-9°. Reactions of PhAsEt_2O or p -tolyl analog, with MeI, EtI or PrI gave noncrystallizing syrups. Reactions of ArAsR_2O with BuI were studied kinetically and formation of $\text{R}_2\text{As(OH)OAsR}_2\text{I}$ products by the above reaction was examd. for ArAsR_2O ($\text{R} = \text{Et, Pr or Ph}$; $\text{Ar} = \text{Ph or } p\text{-NO}_2, \text{Br-}, \text{or Cl-}, \text{Me-}, \text{MeO-}, \text{Me}_2\text{N-}, \text{or } o\text{-MeC}_6\text{H}_4$). The overall reaction is described by apparent 3rd order equation, and groups that increase the nucleophilic nature of the arsine oxide change the kinetics to 2nd order. The rate consts. of the overall process are correlated readily with either Hammett or Taft substituent consts. of groups present in the aryl component.

G. M. Kosolapoff

REEL/FRA
19800945

di 7

Acc. Nr:

AP 0049127

Abstracting Service:

CHEMICAL ABST.

Ref. Code:

UR0079

99758z Mechanism of the reaction of triphenylarsine oxide with butyl iodide. Chernokalskii, B. D.; Bairamov, R. B.; Kamai, G. (Kazan. Khim.-Tekhnol. Inst. im. Kirova, Kazan, USSR). Zh. Obshch. Khim. 1970, 40(1), 143-8 (Russ). The formation of $\text{Ph}_3\text{As}(\text{OH})\text{OAsPh}_3\text{I}$ (I) from reaction of Ph_3AsO and BuI in Me_2CO (cf Ch. *et al.* 1969) proceeded through a reversible formation of Ph_3AsOBuI , followed by irreversible reaction of this with Ph_3AsO . The irreversibility was shown by passing 1-butene 6 hr into I in Me_2CO at 50° , during which the cond. of the system remained const. and the concn. of I was unaltered. Thus, the reaction follows the steps: $\text{R}_3\text{AsO} + \text{R}^1\text{I} \rightleftharpoons \text{R}_3\text{As}^+\text{OR}^1 + \text{I}^-$; $\text{R}_3\text{As}^+\text{OBu} + \text{R}_3\text{AsO}^- \rightleftharpoons \text{R}_3\text{As}^+\text{OCH}_2\text{CH}_2\text{CH}_2\text{CH}_3 + \text{OAsR}_3$; $\text{R}_3\text{As}^+\text{OCH}_2\text{CH}_2\text{CH}_2\text{CH}_3 + \text{I}^- \rightarrow \text{EtCH}=\text{CH}_2 + \text{R}_3\text{As}(\text{OH})\text{OAsR}_3\text{I}$. The rate const. of formation of Ph_3AsOBuI were tabulated from 40° – 55° . The data on rates of reaction at various concns. of the reactants gave at 20° , 25° , 30° and 35° , data for calcn. of apparent formation rate const. using apparent 2nd order kinetics, from which the activation energy was calcd. to be 15.3 kcal/mole and activation entropy -24.3 entropy units. The rate const. was max. in PhNO_2 , followed in order by Me_2CO , tetrahydrofuran, MeOH , and PrOH .

G. M. Kosolapoff

 1/1
 REEL/FRA
 19800933

di. 7

Acc. Nr:

AP0049140

Abstracting Service:

CHEMICAL ABST. 5-70

Ref. Code:

UR0079

100851h Products of the reaction of triphenylarsine sulfide with alkyl halides. Chernokal'skii, B. D.; Levenshtein, I. B.; Kamai, G. (Kazan. Khim.-Tekhnol. Inst. im. Kirova, Kazan, USSR). *Zh. Obshch. Khim.* 1970, 40(1), 148-51 (Russ). Re-fluxing Ph_3AsS in $\text{MeI-Me}_2\text{CO}$ 15.5 hr gave, after washing with cold EtOAc , a residue of 10.7% Ph_3MeAsI , m. 175°, and 34% $\text{Ph}_3\text{MeAsI}_3$ (I) m. 108-9°. Similar reaction with EtI in Me_2CO gave 41.4% $\text{Ph}_3\text{EtAsI}_3$, m. 125-6° and 4.5% Ph_3EtAsI , m. 157-8°; on some occasions 5% Ph_3As was formed. Reaction with PrI 51 hr gave 24.3% $\text{Ph}_3\text{PrAsI}_3$, m. 158°. I heated with Hg in Me_2CO 7 hr gave 22.8 g $(\text{Ph}_3\text{MeAs})_2\text{HgI}_2$, m. 168-70° (cf. Baig, *et al.*, 1962), and more sol. $\text{Ph}_3\text{AsMe.HgI}_2$, m. 138-9°. Similar treatment of $\text{Ph}_3\text{EtAsI}_3$ gave 67.5% $\text{Ph}_3\text{EtAs.HgI}_2$, m. 106°. Similarly was prepd. $\text{Ph}_3\text{PrAs.HgI}_2$ m. 97°.

G. M. Kosoladoff ✓

REEL/FRAME

19800046

USSR

UDC: 547.242

TSENTOVSKIY, V.M., BARABANOV, V.P., CHERNOKAL'SKIY, B.D., BAYRAMOV, R.B., and KAMAY, Gil'm, Kazan' Chemical Technological Institute imeni S.M. Kirov, Kazan, Ministry of Higher and Secondary Specialized Education RSFSR

"Study of Ionic Association of Onium Salts in Solution. I. Conductivity of Tetraphenylarsonium Iodide in Acetone and Propyl Alcohol"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 831-833

Abstract: The authors studied the conductivity of tetraphenylarsonium iodide in acetone at temperatures ranging from 20 to 40°, as well as in propyl alcohol at 25°. The form of the concentration dependence of the equivalent conductivity in acetone is complex. There is an increase in conductivity with an increase in concentration from $0.39 \cdot 10^{-4}$ to $3.12 \cdot 10^{-4}$ m., then a decrease in conductivity with a further increase in concentration. In propyl alcohol the dependence of λ on \sqrt{c} is expressed by a straight line. The conductivity of the salt in

1/2

USSR

TSENTOVSKIY, V. M., et al., Zhurnal Obshchey Khimii, Vol 40, No 4,
Apr 70, pp 831-833

acetone increases with a rise in temperature, despite the fact that
permittivity declines. It is suggested that with dilution in acetone
there is a change in the structure of the particles participating in
the transfer of electricity.

2/2

- 37 -

Organometallic Compounds

USSR

UDC 546.26'11

GIGAURI, R. D., CHACHAVA, G. N., CHERNOKAL'SKIY, B. D., and UGULAVA, M. M.,
Tbilisi State University and Kazan' Chemical Technological Institute Imeni
S. M. Kirov

"Synthesis of Diphenylmethylalkylarsonium Perchlorates"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 4, Apr 73, pp 835-836

Abstract: To a solution of 2.0 g of diphenylmethylamylarsonium iodide in a 1:1 mixture of acetone and distilled water, aqueous solution of 2.2 g of magnesium perchlorate was added. The reaction mixture was left standing for 24 hrs at room temperature precipitating diphenylamylarsonium perchlorate which after washing, drying and recrystallization from ethanol melted at 59-60°. A series of homologous compounds was synthesized by this reaction.

1/1

USSR

UDC 543.422.25:546.19

ZYKOVA, T. V., KAMAY, GIL'M (deceased), CHERNOKAL'SKII, E. D., SALAKHUTDINOV, R. A. and ABALONIN, B. Ye., Kazan Chemical-Technological Institute imeni S. M. Kirov

"PMR Spectra and Structures of Arsonium Salts"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, pp 1044-1047

Abstract: PMR spectrum analysis was used to study the structures of alkylarsonium salts. The chemical shifts as caused by the nature of the arsenic atom environment, an anion, and the nature of the solvent and the concentration of the salts were examined. Thus, a change in the magnitude of the chemical shift of the methyl or methylene groups at the arsenic atom increases the positive charge on the latter in arsonium salts under the action of iodine, the phenyl group, and the possibility of the salt to ionize.

1/1

- 43 -

Organometallic Compounds

USSR

UDC 541.6:543.422.4:547.1'119:547.22

SHAGIDULLIN, R. R., IZOSIMOVA, S. V., CHERNOKAL'SKIY, V. D., and VOROB'YEVA, L. A., Kazan' State University imeni V. I. Ul'yanov-Lenin; Institute for Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR; and Kazan' Chemical Technology Institute imeni S. M. Kirov

"The I.R. Study of the Structure of Products Resulting From the Reaction Between Tertiary Arsino Oxides and Alkyl Halides"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 3, 1972, pp 695-697

Abstract: The IR spectra of $\left[R_3AsO \right]_2HX$ do not distinguish between the forms $R_3 - \underset{\substack{| \\ OH}}{As} - O - \underset{\substack{| \\ X^-}}{As}^+ R_3$ (form A) and $\left[R_3As \rightarrow O \dots H^{\delta} \dots O \leftarrow AsR_3 \right]$

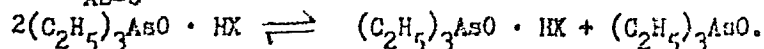
(form B). We attempted to elucidate the correlation between the structure of these compounds and their IR spectra, using the systems $\left[(CH_3)_3AsO \right]_2HI$ (compound I); $\left[(C_2H_5)_3AsO \right]_2HX$, for $X = I$ (compound IIa), $X = Br$ (compound IIb), and $X = Cl$ (compound IIc); $\left[(C_3H_7)_3AsO \right]_2HI$ (compound III); and

1/2

USSR

SHAGIDULLIN, R. R., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 3, 1972, pp 695-697

$[\text{Ph}_3\text{AsO}]_2\text{HX}$, for $\text{X} = \text{Br}$ (compound IVa) and $\text{X} = \text{ClO}$ (compound IVb). Wide intense diffuse absorption bands between 550 and 1800 cm^{-1} are characteristic of these systems. The difference between forms A and B is that in A, proton interaction is possible between the oxygen and the halogen but in B, it is between two oxygen atoms. In spectra made using chloroform and acetophenone the $\nu_{\text{As=O}}$ (880 cm^{-1}) was observed, indicating the following dissociation



It was concluded that the wide adsorption in the area 750 - 1800 cm^{-1} approximately divided into three bands, may be attributed to absorption by the OH group, participating in a strong symmetrical bond.

2/2

- 17 -

USSR

UDC 577.1:615.7/9

CHERNOKAN, V. F.

"Concerning the Cutaneous Responsive Action of Hexachlorobutadiene and Polychlorobutane-80"

V sb. Aktual'n. vopr. gigiyeny i epidemiol. (Current Problems of Hygiene and Epidemiology), Kishinev, "Kartya Moldovenyaske," 1972, pp 66-68 (from RZh-Biologicheskiye Khimiya, No 11, Jun 73, Abstract No 11 F2069)

Translation: For a period of 3 months, hexachlorobutadiene (I; 21.1 mg/kg) or polychlorobutane-80 (II; 25.2 mg/kg) were administered daily to the skin of rabbits. From the seventh to the thirtieth day of administration of I and II the total protein in the blood increased (by 13.6%) and subsequently gradually declined. After a lapse of two months the content of albumins in the blood declined and the content of globulins increased; during the action of I and II, the content of β globulins increased by 55.4 and 69% respectively. During the action of II, the activity of alkaline phosphatase in the blood increased by 10.6% after 7 days and by 247.4% after 90 days compared with the initial readings. The readings of thymol blood samples were much higher starting with the third day of application of II. The content of SH groups in 1/2

USSR

CHERNOKAN, V. F., Current Problems of Hygiene and Epidemiology, Kishinev, "Kartya Moldovenaske," 1972, pp 66-68

the blood was higher 45 days after the application of I and II; the content of glycogen in the liver and of the SH groups in homogenate of the liver was higher.

2/2

- 55 -

USSR

UDC 577.1:615.7/9

GUL'KOM A. G., DRANOVSKAYA, L. H., and CHERNOKAN, V. F.

"Materials on the Distribution and Elimination of Epidermically Administered Hexachlorobutadiene From the Bodies of Experimental Rats"

V sb. Aktual'n. vopr. gigiyeny i epidemiol. (Current Problems of Hygiene and Epidemiology), Kishinev, Kartya Moldovenyasko, 1972, pp 63-64 (from RZh-Biologicheskaya Khimiya, No 11 Jun 73, Abstract No 11 F2068)

Translation: Three hours after the one-time epidermic administration of 43.3 mg/kg (0.01 LD₅₀) of hexachlorobutadiene (I) to rats, the insecticide was detected in the blood and kidneys, after 6 hours -- in the brain and fatty tissue, and after 24 hours -- in the liver. I was not detected in adipose cellular tissue, in the blood, in the brain, and in kidneys after 3, 7, 14, and 14 days, respectively. I was detected in the urine after 12 and 24 hours. I gradually enters the body from the skin over a period of 7 days. In Chronic experiments (administered to the skin in doses of 2.1; 4.3 and 86. mg/kg for a period of 6 months), by the end of 4 months of administration I was found only in the skin and was absent from the blood, from internal organs and from the urine as well as from the spleen, from cardiac and skeletal muscles and from the abdominal wall and from the skin other than the point of administration. 1/1

USSR

UDC 576.851.49(B.typhi).097.3:54

GERMAN, G. P., and CHERNOKHVESTOVA, Ye. V., Moscow Institute of Epidemiology and Microbiology

"Immunochemical Heterogeneity of Incomplete Antibodies to O-Antigen of S. Typhi"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 11, 1971, pp 127-131

Abstract: Blood serum of typhoid patients, individuals vaccinated against this disease, and chronic typhoid carriers may contain three types of incomplete antibodies to the O-antigen of S. typhi -- IgG, IgA, and IgM -- which differ from each other in immunochemical properties and which also differ from the corresponding complete antibodies in chemical and physical properties. The IgG type of O-antibodies occurs most frequently and in the highest titers. The IgG type antibodies are also present in the serum of vaccinated persons in whom the synthesis of complete O-antibodies is inhibited. In chronic S. typhi carriers, production of complete O-antibodies of the IgM type is suppressed, while incomplete antibodies of the IgM type are present in their blood serum, though in low titers. In mice infected with typhoid O-antigen, incomplete IgG and IgM type O-antibodies are synthesized in the early stage of the

1/2

USSR

GERMAN, G. P., and CHERNOKHVESTOVA, Ye. V., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 11, 1971, pp 127-131

immune response and are present in the serum prior to the appearance of complete antibodies.

2/2

1/2 012 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--EFFECT OF MAGNESIUM ON CARBOHYDRATE METABOLISM IN BARLEY PLANTS -U-
AUTHOR--(02)-TRESHCHOV, A.G., CHERNOKLINOVA, V.A.
COUNTRY OF INFO--USSR
SOURCE--KHIM. SEL. KHOZ. 1970, 8(2), 105-6
DATE PUBLISHED-----70

SUBJECT AREAS--AGRICULTURE

TOPIC TAGS--MAGNESIUM, CARBOHYDRATE, SOIL TYPE, FERTILIZER APPLICATION,
MINERAL FERTILIZER, CEREAL CROP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1376 STEP NO--UR/C394/70/006/002/0105/0106

CIRC ACCESSION NO--AP0125024
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125024

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BARLEY PLANTS WERE GROWN IN LIGHT PODZOLIC SOILS WITH PH 4.9, AVAILABLE, AND HYDROLYTIC ACIDITY 1.23 AND 4.20 MEQUIV.-100 G SOIL RESP., TOTAL ABSORBED ALKALI 1.5 MEQUIV.-100 G, AND DEGREE OF SOIL SATN. WITH ALKALI 31PERCENT. THE EFFECT OF MG FERTILIZERS ON BARLEY GROWTH AND DEVELOPMENT WERE STUDIED ON THE FOLLOWING VARIANTS OF SOIL BACKGROUNDS: ACID, BY THE ADDN. OF N-P-K((NH SUB4) SUB2 SO SUB4 PLUS NANO SUB3 30, SUPERPHOSPHATE 45 AND KCL 60 KG-HA), WITH OR WITHOUT MGSO SUB4; LIGHT ACID, BY THE ADDN. OF NPK FERTILIZERS WITH CHALK, OR DOLOMITE, OR CHALK AND DUNITE; LIMED, BY THE ADDN. OF N-P-K FERTILIZERS WITH CHALK AND MGSO SUB4; AND NITRATED, BY THE ADDN. OF NPK FERTILIZERS WITH OR WITHOUT MGSO SUB4. MGSO SUB4 ADDN. TO THE SOIL CONTRIBUTED TO THE INCREASE OF STARCH IN THE MATURE BARLEY GRAINS. THE MOST EFFECTIVE TREATMENT WAS ADDN. OF MGSO SUB4 TO THE ACID AND NITRATED BACKGROUND, WHEN THE STARCH CONTENT INCREASED BY 6PERCENT. DURING LEAF AND EAR DEVELOPMENT, MGSO SUB4 ADDN. INCREASED THE EFFLUX OF SOL. SUGARS FROM VEGETATIVE INTO REPRODUCTIVE ORGANS. FACILITY: UNIV. DRUZHBY NAR. IM. LUMMUMBY, MOSCOW, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--PHYSICOCHEMICAL PROPERTIES OF 2,3,QUINOXALINEDITHIOL -U-

AUTHOR--(03)--CHERNOMORCHENKO, L.I., AKHMETSHIN, A.G., CHUIKO, V.T.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 231-6

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHYSICAL CHEMISTRY PROPERTY, THIOL, AQUEOUS SOLUTION, CHEMICAL
STABILITY, IONIZATION CONSTANT, AMPEROMETRIC TITRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/2179

STEP NO--UR/0075/70/025/002/0231/0236

CIRC ACCESSION NO--AP0125759

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125759

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STABILITY OF AQ. DIMETHYLFORMAMIDE SOLNS. OF 2,3,QUINOXALINEDITHIOL (I) WAS STUDIED. THE DECOMP. RATE OF THE REAGENT SOLNS. GREATLY DECREASES AFTER ACIDIFICATION. THE OPTIMUM RATIO OF THE SOLVENT COMP. IS 70PERCENT DIMETHYLFORMAMIDE WITH 30PERCENT H SUB2 O. THE IONIZATION CONSTS. OF THE REAGENT IN AQ. DIMETHYLFORMAMIDE SOLNS. WERE DETD. BY A POTENTIOMETRIC METHOD. PK VALUES DEPEND LINEARLY ON THE WATER CONTENT. THE IONIZATION CONSTS. OBTAINED BY EXTRAPOLATION OF THE STRAIGHT LINES TO VALUES CORRESPONDING TO 100PERCENT H SUB2 O CONTENT ARE IN GOOD AGREEMENT WITH DATA OBTAINED BY THE SOLY. METHOD. I IS A WEAK ACID WITH DISSOCN. CONSTS. K_{SUB1} EQUALS 1.16×10^{-7} (PK SUB1 6.95) AND K_{SUB2} EQUALS 1.23×10^{-10} (PK SUB2 9.91). I IS READILY OXIDIZED ON A GRAPHITE MICROANODE AND GIVES SEVERAL WELL DEFINED STAGES OF THE DIFFUSION CURRENT, THEIR HEIGHT BEING PROPORTIONAL TO THE CONCN. OF I. THIS CAN BE USED FOR THE AMPEROMETRIC DETN. OF SEVERAL ELEMENTS. FACILITY: DNEPROPETROVSK STATE UNIV., DNEPROPETROVSK, USSR.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--STABILITY IN TENSION AND STRENGTH TESTS OF TUBES -U-
AUTHOR--(02)-MAKSAK, V.I., CHERNOMORCHENKO, V.I. C
COUNTRY OF INFO--USSR
SOURCE--PROBLEMY PROCHNOSTI, VOL. 2, MAY 1970, P. 26,27
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--PLASTIC DEFORMATION, MECHANICAL STRESS, STRAIN, METAL TUBE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/1438 STEP NO--UR/3663/70/002/000/0026/0027
CIRC ACCESSION NO--AP0135109
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135109

ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. ANALYSIS AIMED AT CLARIFYING AN UNEXPECTED EXPERIMENTAL RESULT ACCORDING TO WHICH FAILURE OF THIN WALLED TUBULAR SAMPLES CAN OCCUR AT VARIOUS STRESS AND STRAIN INTENSITIES, DEPENDING ON THE TYPE OF THE STRESS STRAIN STATE. IT IS SHOWN THAT THIS PHENOMENON CAN BE EXPLAINED IN TERMS OF INSTABILITY OF PLASTIC DEFORMATION UNDER TENSION.

UNCLASSIFIED

USSR

UDC 576.851.48.083.3:615.33

CHERNOMORDIK A. B., and KOZHUKHAR', I. G., Kiev Institute of Infectious Diseases

"Media With Antibiotics for Isolating the Agents of Colienteritis"

Moscow, Laboratornoye Delo, No 9, 1971, pp 555-557

Abstract: Three elective nutrient media with various combinations of antibiotics (A - streptomycin and penicillin; B - neomycin and penicillin; C - neomycin, streptomycin, and penicillin) were added to lactose agar with eosin and methylene blue in order to isolate the agents of colienteritis. The ordinary agar medium and the three media with antibiotics were compared by simultaneously inoculating them with stools from children with colienteritis or suspected of having it. Enteropathogenic microbes were isolated in 90 of 243 specimens examined. All 90 bacteria carriers were detected on the media with antibiotics compared with only 41 on the agar medium. The greater effectiveness of the media with antibiotics is due to the fact that the drugs suppress foreign intestinal microflora, including nonpathogenic intestinal bacilli which are generally sensitive to streptomycin and neomycin.

1/1

- 10 -

Acc. Nr: A P0044846

Ref. Code:

UR 0497

PRIMARY SOURCE: Klinicheskaya Meditsina, 1970, Vol 48,
Nr 2 , pp 143-146

ANTIBIOTIC THERAPY OF BACTERIAL AFFECTIONS
OF THE LIVER AND BILE DUCTS

A. B. Chernomordik

Summary

The paper depicts the main principles of antibiotic therapy of bacterial infections of the liver and bile ducts. The author points to the importance of species and individual sensitivity of the causative agent, describes preparations (in particular new ones) which are most effective for the treatment of coccal and coli-infections in the biliary tract, as well as the therapeutic tactics in instances when an unknown factor is the etiology of the disease and microbial sensitivity, properties of some antibiotics, which should be taken into consideration and other factors influencing the effectiveness of antibiotic therapy.

//

REEL/FRAME
19771701

DI

02

Acc. Nr: **AP0051903**

Ref. Code: **UR0475**

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 2, pp 26-28

EFFECT OF BENZOHXONIUM ON THE PHYSICAL AND CHEMICAL PROPERTIES
OF BILE IN HEALTHY PERSONS AND CHRONIC CHOLECYSTITIS PATIENTS

S. I. Kamenetskiy, and N. N. Chernomorgels (Donetsk)

The effect of benzhexonium was studied on the physical properties and chemical content of bile in 114 patients with chronic cholecystitis and also in healthy subjects.

It was found that benzhexonium exerted no negative effect on the normal physical properties and chemical content of bile both in the healthy persons and patients with chronic cholecystitis. Benzhexonium exerted a positive effect on the pathologically changed hepatic and bladder bile.

111

44

2

REEL/FRAHE
19820386

1/2 039 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ELECTROCHEMICAL CATHODIC EROSION OF LEAD -U-
AUTHOR--(03)-CHERNOMORSKIY, A.I., KISELEVA, I.G., KABANGOV, B.N.
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKHIMIYA 1970, 6(3), 429-32
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--POTENTIOMETRIC ANALYSIS, CAVITATION, CHEMICAL DECOMPOSITION,
LEAD, METAL ELECTRODE, ELECTROCHEMISTRY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1998/1141 STEP NO--UR/0364/70/006/003/0429/0432
CIRC ACCESSION NO--AP0121700
UNCLASSIFIED

2/2 039

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121700

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTRODUCTION OF ALKALI METAL AT HIGH CATHODIC POTENTIALS INTO PB ELECTRODES IN 10N NaOH WAS INVESTIGATED BY A CHRONOPOTENTIOMETRIC METHOD. THE AMT. OF ALKALI METAL INTRODUCED INTO THE PB INCREASED MARKEDLY ON STARTING FROM A POTENTIAL OF MINUS 2.1 V (VS. STANDARD H ELECTRODE), WHILE AT A POTENTIAL OF MINUS 2.3 V, INTENSIVE EROSION OF PB TOOK PLACE (VISUALLY OBSERVED). THE AUTOMIZATION PROCEEDED MORE RAPIDLY AND INTENSELY FOR 1-5 N NaOH SOLNS. AT A POTENTIAL OF MINUS 2.4 V THAN AT MINUS 2.3 V. THE REASON FOR THE AUTOMIZATION OF PB IS THE CHEM. DECOMP. OF THE INTERMETALLIC COMPD. HAVING A LARGE CONTENT OF ALKALI METAL. FACILITY: INST. ELEKTROKHM., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 51

CHERNOPISKIY, I. P.

"Notes on the Existence of a Saddle Point in Stochastic Programming Problems"

V sb. Mat. metody issled. i optimiz. sistem (Mathematical Methods of Studying and Optimizing Systems--collection of works), Kiev, 1971, pp 221-224 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V553)

[No abstract]

1/1

- 43 -

USSR

UDC: 621.315.592

LYSENKO, V. S., LITOVCHENKO, V. G., KORNYUSHIN, S. I., CHERNOPIISKIY, V. P.,
Institute of Semiconductors, Academy of Sciences of the UkrSSR OK

"Effect of Gamma Irradiation on the Electrical Properties of a Real Germanium Surface"

Kiev, Poluprovodnikovaya Tekhnika i Mikroelektronika. Resp. Mezhd. Sb.,
No 7, 1972, pp 47-51

Abstract: The paper gives some results of a study of radiation defects induced by exposure to gamma quanta on the surface and in the space charge region in germanium. Thin specimens of N-type ($\rho = 20, 43, 50 \Omega \cdot \text{cm}$) and P-type ($\rho = 30 \Omega \cdot \text{cm}$) were studied. The results of the research showed an appreciable increase in the rate of surface recombination, especially in the region of positive potentials, with a new recombination level on curves for surface recombination rate as a function of initial potential in this region. Specimens with an elevated oxygen content showed an increase in the density of fast shielding states throughout the potential range, whereas oxygen-free specimens showed practically no change in the concentration of such states. The initial potential was shifted toward the N-side after ex-

1/2

- 68 -

LYSENKO, V. S. et al., Poluprovodn. Tekh. i Mikroelektron. Resp. Mezhved. Sb., No 7, 1972, pp 47-51

posure in all specimens. The maximum displacement was accompanied by a reduction in the density of "slow" states. The stability of the new centers was shown by the fact that the surface characteristics of irradiated specimens were not altered by exposure to the atmosphere for two months. Very brief treatment in hydrogen peroxide (about 4 s) almost completely restored the surface potential to the values observed in specimens before irradiation. This indicates that the potential displacement observed is due to alteration of the chemical structure of the surface oxide phase.

172 022 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--INVESTIGATION OF THE MECHANISM OF CHANGES OF RS CHARACTER OF
NEUROVACCINE IN PASSAGES IN THE PRESENCE OF BROMODEOXYURIDINE -U-
AUTHOR-(03)-CHERNOS, V.I., APRIDONIDZE, K.G., GHENDON, YU.Z.
CCUNTRY OF INFO--USSR
SOURCE--J GEN VIROL 6(3): 355-359. 1970
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BROMINATED ORGANIC COMPOUND, VIRUS, SKIN PHYSIOLOGY, NECROSIS,
INTERFERON
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0929 STEP NO--UK/0000/70/006/003/0355/0359
CIRC ACCESSION NO--AP0126588
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0126588

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NEUROVACCINIA VIRUS PROPAGATED IN THE PRESENCE OF BROMODEGXYURIDINE LOSES THE CAPACITY TO PRODUCE NECROSIS IN THE SKIN OF RABBITS. MECHANISMS UNDERLYING THIS LOSS WERE STUDIED. THE POPULATION UNDER STUDY CONSISTED PREDOMINANTLY OF VIRUS PARTICLES CAPABLE OF PRODUCING NECROSIS (RS PRIME POSITIVE) AND A SMALL PORTION OF PARTICLES WHICH HAD LOST THIS CAPACITY (RS PRIME NEGATIVE). AN RS PRIME NEGATIVE CLONE ISOLATED FROM THE POPULATION INDUCED AN INHIBITOR OF INTERFERON TYPE IN RABBIT SKIN, WHICH MARKEDLY INHIBITED REPRODUCTION OF RS PRIME POSITIVE VIRUS STRAINS AND CONSEQUENTLY THE CAPACITY OF THESE STRAINS TO PRODUCE NECROSIS. FACILITY: MOSCOW RES. INST. VIRAL PREP., MOSCOW, USSR.

UNCLASSIFIED

CHERNOUS F.L.

Acc. Nr.: AN0104123

Ref. Code: UR 9003

TITLE-- ANNOUNCEMENT OF THE COMMITTEE ON LENIN AND STATE PRIZES, U.S.S.R. 49

NEWSPAPER-- IZVESTIYA, MAY 28, 1970, P 4, COLS 1-5

ABSTRACT-- NINETY ONE BASIC AND APPLIED RESEARCH WORKS HAVE BEEN NOMINATED FOR THE STATE PRIZES. TWO OF THESE, "THE MULTI-PURPOSE INDUSTRIAL HELICOPTER KA-26", BY N. I. KAMOV, V. B. ALPEROVICH, V. B. BARSHEVSKIY, A. A. DMITRIYEV, G. I. IOFFE, M. A. KUPFER, L. A. POTASHNIK, N. N. PRIOROV, A. G. SATAROV, I. M. VEDENEYEV, S. B. BREN, AND V. A. NAZAROV, AND "THE DEVELOPMENT OF TURBOFAN JET ENGINES NK-8 AND NK-8-4, AND THE DEVELOPMENT AND REDUCTION TO SERIAL PRODUCTION A SYSTEM OF TECHNOLOGICAL PROCESSES WHICH ASSURED WIDE USES FOR TITANIUM ALLOYS", BY N. D. KUZNETSOV, M. T. VASILISHIN, V. A. KURGANOV, P. M. MARKIN, V. D. RADCHENKO, P. A. SUKHOV, A. A. MUKHIN, V. G. SHITOV, G. I. MUSHENKO, L. A. SHKODO, AND G. P. DOLGOLENKO, HAVE BEEN SUBMITTED BY THE MINISTRY OF THE AVIATION INDUSTRY.

1/2

Reel/Frame
19870555

Acc. Nr.: AN0104123

"A SERIES OF INVESTIGATIONS INTO THE DYNAMICS OF A BODY WITH FLUID-FILLED CAVITIES", /65-68/, BY N. N. MOISEYEV, A. A. PETROV, V. V. RUMYANTSEV AND F. L. CHERNOUSKO AND "ULTRA HIGH PRECISION JIG BORING MILLS WITH 1,000 X 1,600 AND 1,400 X 2,240 MM PLATENS", BY A. I. KIRYANOV, V. G. ABRAMOVICH, I. V. GUTKIN, A. S. ALIMPIYEV, G. B. PAUKOV, AND A. S. YEGUDKIN, HAVE BEEN SUBMITTED BY THE COMPUTATION CENTER OF THE ACADEMY OF SCIENCES AND THE MINISTRY OF THE MACHINE TOOL CONSTRUCTION AND TOOL INDUSTRY, RESPECTIVELY.

"THE RADICALLY IMPROVED MELTING TECHNOLOGY OF CRITICAL-PURPOSE HIGH-ALLOY STEELS AND ALLOYS OF IMPROVED QUALITY ACHIEVED BY THE INERT GAS TREATMENT OUTSIDE THE FURNACE", BY YU. V. GERASIMOV, O. M. CHEKHOMOV, N. V. SIDOROV, S. K. FILATOV, B. A. CHEREMNYKH, E. M. KHAYRUTDINOV, I. P. BARMOTIN, L. K. KOSYREV, K. P. BAKANOV, N. N. VLASOV, P. I. MELIKHOV, AND N. A. TULIN, HAS BEEN SUBMITTED BY THE ZLATOUST METALLURGICAL PLANT.

2/2

Reel/Frame
19870556

KZ

USSR

UDC[537.226+537.311.33]:[537+538]

BOYKO, I. I., and CHERNOUSENKO, V. M.

"Some Questions in the Theory of Plasma Phenomena in Semiconductors. I. Nonstationary Effects"

Nekotoryye voprosy teorii plazmennyykh yavleniy v poluprovodnikakh. I. Nestatsionarnyye efekty (cf. English above. Academy of Sciences Ukrainian SSR, Physics Institute, Preprint 71-3), Kiev, 1971, 62 pp, ill., 23 k. (from RZh-Fizika, No 1, Jan 72, Abstract No 1YE1491 for authors)

Translation: The authors consider the question of establishing the pinch effect after the inclusion of a drift electric field at the initial moment of time. An investigation is conducted for crystals of two geometries: cylinder and plate. In particular, for the cylinder a "breakdown" criterion is obtained which takes into consideration volume and surface generation-recombination. Eddy electric currents (Foucault currents) are induced in a crystal inserted in an external, time-variable magnetic field. Given bipolar conductivity, the interaction of these currents with the external magnetic field leads to spatially inhomogeneous distribution of electron-hole pairs. Concentration effect in a magnetic field both increasing and decreasing with time is considered. In the latter case the effect is significantly greater.

1/1

USSR

UDC: 518:519.3

BANICHUK, N. V., PETROV, V. M., and CHERNOUS'KO, F. L.

"Algorithm and Convergence Problems of the Method of Local Variations for Partial Derivative Situations"

Moscow, Zhurnal Vychislitel'noy Matematiki i Matematicheskoy Fiziki, No 1, 1973, pp 47-58

Abstract: The method of local variations for the numerical solution of variational problems was originally proposed in an article published by the last of the above-named authors in the same journal (5, No 4, 1965, pp 749-754). The present paper offers a number of new results in the development of this method for solving variational problems involving partial derivatives. An algorithm of the method is given for the minimization problem of a non-additive functional of arbitrarily general form together with some generalizations and modifications of the method. A standard program for the method is presented in the form of a procedure using the ALGOL 60 language for variational problems with a nonadditive functional depending on functions of two variables. The final section of the paper is devoted to convergence questions and error evaluations.

1/1

USSR

UDC: 531.01

KLIMOV, D. M., KOSMODEM'YANSKAYA, G. N., CHERNOUS'KO, F. L.

"Concerning the Motion of a Gyroscope With Noncontact Suspension"

Izv. AN SSSR. Mekh. tverd. tela (News of the Academy of Sciences of the USSR. Solid State Mechanics), 1972, No 2, pp 3-8 (from RZh-Mekhanika, No 9, Sep 72, Abstract No 9A79)

Translation: It is assumed that a gyroscope in a noncontact suspension with center of gravity noncoincident with the point of suspension can be treated as a body with a fixed point. Slight imbalance or slight nonsphericity of the ellipsoid of inertia is taken as the small parameter ϵ of the problem. Averaged equations of motion are constructed and used to determine the precession of the gyroscope axis due to imbalance. It is stated that for sufficiently small ϵ the approximate solution guarantees an arbitrarily small error on an infinite time interval (both for the resonance and non-resonance cases). Bibliography of 6 titles. I. V. Novozhilov.

1/1

USSR

UDC 531.1

KLIMOV, D. M., KOSMODEM'YANSKAYA, G. N., CHERNOUS'KO, F. L., Kaluga,
Moscow

"Concerning the Motion of a Gyroscope With a Noncontact Suspension"

Moscow, Mekhanika tverdogo tela, No. 2, Mar/Apr 72, pp 3-8

Abstract: The motion of a gyroscope suspended in a certain force field is investigated, where it is assumed that the force field by providing stability of the center of suspension of the gyroscope with respect to the base has a negligible effect on its angular motion and the center of gravity of the gyroscope has a small displacement relative to the center of suspension. The problem of the motion of a gyroscope with noncontact suspension in this formulation is equivalent to the problem of the motion of a body with a fixed point, the center of gravity of which is a small distance removed from the fixed point. Since the equations of motion of a body where the center of gravity does not coincide with the point of support are generally not integrable, the following parameters are selected as phase coordinates defining the motion of the body, having in mind the subsequent application of the method of averaging in terms of the rapidly varying coordinates: the magnitude K of the kinetic moment $1/2$

USSR

KLIMOV, D. M., et al, Mekhanika tverdogo tela, No. 2, Mar/Apr 72, pp 3-8

of the body, the angles α and β determining the direction of the vector of the kinetic moment relative to the fixed coordinate system with center at the point of suspension, and the angles ψ , θ , ϕ determining the position of the axes z_i connected with the solid body relative to the axes

ζ_i connected with the vector K of the kinetic moment of the body. It is shown that the kinetic energy T changes slowly with time since the values of M_i ($i = 1, 2, 3$) are small, where the M_i are the projections of the moment of the external forces relative to the point of suspension of the axes connected with the vector K . The general case of rapid motion of a body with arbitrary moments of inertia is also discussed. The results can be used in analyzing the accuracy of gyroscopes with various suspensions, such as electrostatic and electromagnetic.

2/2

- 114 -

USSR

UDC: 531.1

CHERNOUS'KO, F. L., Moscow

"Motion of a Solid Body with Moving Internal Masses"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Tverdogo Tela, No 4, Jul-Aug 73, pp 33-44

Abstract: The author studies some instances of the motion of a solid body containing moving internal masses. The average value of the disturbing moment conditioned by internal motion is calculated for the instance where such masses are in rapid periodic motion with respect to the body. Some problems are studied which are associated with the motion of a free body carrying a moving mass which is connected to the body by an elastic connection in the presence of viscous friction. It is shown that the presence of a moving point inside a body does not significantly change its kinetic moment, but can result in significant energy dissipation.

1/1

Stress Analysis and Stability Studies

USSR

UDC: 539.3

PETROV, V. M., ~~CHERNOUS'KO, F. L.~~, Moscow

"On the Equilibrium of a Fluid Bounded by a Flexible Film"

Moscow, Izvestiya AN SSSR: Mekhanika Tverdogo Tela, No 4, Jul/Aug 71, pp131-142

Abstract: The authors consider some problems in the statics of a fluid confined by a vessel with a flexible nonexpandable film. The possible forms of equilibrium are determined for the two-dimensional problem, and their stability is studied. A numerical solution is found for one nonlinear axisymmetric problem. The problems considered are of interest in connection with the study of the behavior of a liquid under conditions close to weightlessness, and are related to problems of the equilibrium of a fluid under the effect of forces of gravity and surface tension. The authors thank R. D. Soldatov for assistance with the calculations.

1/1

1/2 042 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--MOTION OF A FLUID BOUNDED BY A FLEXIBLE FILM -U-
AUTHOR--CHERNOLSKO, F.L.
COUNTRY OF INFO--USSR
SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA ZHIDKOSTI I GAZA,
JAN.-FEB. 1970, P. 104-112.
DATE PUBLISHED--70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MOTION MECHANICS, MOTION EQUATION, FLUID MECHANICS, SHOCK
HYDRODYNAMICS, SURFACE FILM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/1451 STEP NO--UR/0421/70/000/000/0104/0112

CIRC ACCESSION NO--AP0112445
UNCLASSIFIED

2/2 042

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0112445

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE TWO DIMENSIONAL PROBLEM OF THE MOTION OF AN IDEAL INCOMPRESSIBLE FLUID OF CONSTANT DENSITY ALONG A GROOVE FORMED BY AN ABSOLUTELY FLEXIBLE NONEXPANDABLE FILM WHOSE ENDS ARE EITHER FIRMLY FIXED OR MOVE IN A PRESCRIBED MANNER. THE MOTION OF THE FLUID IS ASSUMED TO BE A TWO DIMENSIONAL AND IRROTATIONAL. SURFACE TENSION IS NEGLECTED. CERTAIN PECULIARITIES OF THE FLOW ARE EXAMINED FOR A TENSELY STRETCHED FILM AND FOR AN UNSTRETCHED FILM (IN WHICH CASE A CAVERN FORMS BETWEEN THE FLUID AND THE FILM). THE CONDITIONS FOR THE ONSET OF A HYDRODYNAMIC SHOCK FOR A FLUID BOUNDED BY A CLOSED FILM ARE DEFINED.

UNCLASSIFIED

USER

UDC: 62-50

CHERNOUS'KO, F. I.

"Optimizing Control and Observation Processes in a Dynamic System With Random Perturbations"

Moscow, Avtomatika i Telemekhanika, No 4, 1972, pp 42-49

Abstract: Two equations describing the motion of a controlled object are given. The first is a system of differential equations linearized around some unperturbed motion; the second is nonlinear and describes the change in time of a variable q , which may be assumed to be exactly known at any moment of time. This second equation may be thought of as the law of flow rate from an energy source with q as the energy. The problem the author sets himself in this article is to derive an expression for the vector of the control function as a function of the time, of the initial a priori information, and of the vector for the observation results. The Bellman equation is used for solution of the problem, and six particular cases are considered. An example is given of a problem in optimal combined control of motion and observation processes. The author notes that while this article considered problems of continuous time and observations, it can also be applied to discrete time and pulsed control and observations. The
1/2

USSR

UDC: 62-50

CHERNOUS'KO, F. L., Avtomatika i Telemekhanika, No 4, 1972, pp
42-49

author expresses his gratitude to V. B. Kolmanovskiy for his
useful comments.

2/2

- 81 -

USSR

UDC: 621.396.6.017.7

ZIMA, A. A., CHERNOUSOV, L. P., CHERNOUSOVA, N. N.

"An Automatic Device for Controlling and Measuring the Temperature in a Hot-and-Cold Box"

Tr. Sib. NII metrol. (Works of the Siberian Scientific Research Institute of Metrology), 1971, vyp. 12, pp 98-102 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V284)

Translation: The paper describes a device for controlling and measuring the temperature in a hot-and-cold box in ranges of 0-600°C and -50-100°C with an accuracy of 0.5 percent of the range of a type EPV2-11A potentiometer. Resumé.

1/1

USSR

UDC: 621.317.335.3

CHERNOUSOVA, N. N., ~~CHERNOUSOV, I. P.~~

"An Instrument for Measuring the Dielectric Parameters of Ferrites in the 1-100 MHz Frequency Range"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 150-151 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A357)

Translation: The authors describe an instrument for measuring the relative permittivity and loss tangent of ring-shaped ferrites and dielectrics in the 1-100 MHz range. The device is designed around the oscillator method. The self-excited oscillator which is the fundamental element of the instrument operates on a bar tube connected in a three-point inductive circuit. The measurements are made by the two-balance method (with and without the specimen). The specimen is placed in a coaxial cell which is an element in a tank circuit. The permittivity can be measured only from the change in capacitance of the reference capacitor. One illustration. N. S.

1/1

Acc. Nr:

AP0049943

Abstracting Service:
CHEMICAL ABST. 5-70

Ref. Code:

UR 0065

103490a Device for the automatic determination of phenol in waste waters. FSV-65V type. Bukler, V. O.; Ivanov, V. S.; Men'kov, P. A.; Chernousov, N. N. (USSR). *Khim. Tekhnol. Topl. Masel* 1970, 15(1), 38-40 (Russ). The detn. was based on the reaction of water contg. phenol with reagents producing coloration. The color change, depending on the concn. of phenol, was recorded by an automatic photoelec. colorimeter and compared with control glasses corresponding to detd. concns. of phenol. The device included a sampler and sample-prep. system, automatic dosing and mixing water and reagents, colorimeter AKN-65V, and electronic potentiometer EPP-09M3 with scales: 0-10 mV; absorbance units, and 0-50 mg I/l. Thus, 25 ml water at $\leq 40^\circ$ was mixed with pyramidon 1, buffer 7, and NH_4^+ peroxysulfate soln. 7 ml and transferred into a colorimeter cuvette. The detn. ranges were 0-5 and 0-50 mg phenol/l., being required 40-60 min/detn., with errors of $\pm 15\%$; sensitivity and reproducibility of 5%.

GGJR

gpc

REEL/FRAME
19801879

7

2

USSR

UDC 621.378.35

GORBYLEV, V.A., PAK, G.T., PETROV, A.I., CHERNOUSOV, N.P., SHVEYKIN, V.I.,
YASHUNOV, I.V.

"Dependence Of Threshold Of Generation Of Injection Lasers On The Duration Of
The Pulses Of The Pumping Current"

Kvantovaya elektronika, Moscow, No 5, May 71, pp 97-99

Abstract: The dependence is experimentally studied of the threshold of generation of injection lasers with diffused and heterogeneous junctions in the system GaAs--AlAs on the duration of the pulses of the pumping current in the interval 2--100 nsec. The magnitudes are determined of the effective lifetimes of the injected electrons for three types of laser diodes: with diffused p-n junction (~ 1 nsec), with one heterojunction (~ 2.5 nsec) and with two heterojunctions (3--6 nsec). The nanosecond pulses of the pumping current in the 2--100 nsec range with a building up front less than 1 nsec were shaped with the aid of a TG11-8/1 thyatron and dispersed delay lines. The pulse repetition frequency was regulated from 100 Hz to 10 kHz. Received by editors, 22 May 71; after revision, 6 May 71. 2 fig. 1 tab. 6 ref.

1/1

- 99 -

7

USSR

UDC 621.315.592

ALFEROV, ZH. I., ANDRIYEV, V. M., BELOUSOVA, T. YA., BORODULIN, V. I., GORBYLEV, V. A., PAK, G. T., PETROV, A. I., PORTNOY, YE. L., ~~CHERNOUSOV, N. P.~~, SHVEYKIN, I. I., YASHCHUMOV, I. V.

"Effective Injection Heterolasers Operating in the Wavelength Band of 7,400-9,000 Å"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 568-569

Abstract: Results are presented from a study of the characteristics of effective heterolasers radiating in the wavelength band of 7,400-9,000 Å at room temperature. The n-AlGa_xAs-p-AlGa_{1-y}As-p⁺-AlGa_xAs heterojunctions were obtained by epitaxial growth from GaAs-AlAs solutions. All the investigated diodes had a Fabry-Perot resonator. The threshold current density, the external differential quantum efficiency and the radiation power per pulse at 300°K are tabulated for various models of the lasers. Graphs are presented showing the mean values of the threshold current density and the external differential quantum efficiency as functions of the emission quantum energy and the temperature dependence of the external differential quantum efficiency. The threshold current density increases exponentially with an increase in temperature according to the known law [V. I. Leskovich, et al., FTP, No 1, 144, 1967]. Up to 1/2

USSR

ALFEROV, ZH. I., et al., Fizika i Tekhnika Polupr. vodnikov, Vol 6, No 3, 1972, pp 568-569

a temperature of 250° K, the external differential quantum efficiency does not vary, in practice, but then it decreases with temperature. The data demonstrate the possibility of obtaining generation in the continuous mode at 300°K up to 7,700 Å.

2/2

- 86 -

USSR

UDC 621.373.826

PAK, G. T., PETROV, A. I., FAYNBOYM, YE. G., CHERNOUSOV, N. P., SHVEYKIN, V. I.,
YASHUTOV, I. V.

"Internal Parameters of Injection Lasers at 300° K"

V sb. Kvant. elektronika (Quantum Electronics-- collection of works), Moscow,
No 5, 1971, pp 99-101 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1D350)

Translation: The results of experimental studies of the basic parameters of the active zone of injection lasers based on diffusion and epitaxial p-n-transitions and heterotransitions in the GaAs-AlAs system are described. It is demonstrated that heterolasers with two-sided limitation have better characteristics: the specific amplification coefficient is 10^{-2} cm/amp, the inversion current density is 2.1 kilamps/cm², and the losses are 26 cm⁻¹. There is 1 illustration and a 6-entry bibliography.

1/1

USSR

UDC 621.375.82

3

BORODULIN, V. I.; MALYAVKINA, G. M., PAK, G. T., PETROV, A. I., CHERNOUSOV,
M. P., SHVEYKIN, V. I., YASHUMOV, I. V.

"Some Properties of Degradation of Heterolasers"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 3, Moscow, Soviet Radio, 1972, pp 108-110 (from RZh-Fizika, No 12, Dec 72, Abstract No 12D977)

Translation: An experimental study was made of the catastrophic and slow degradation of heterolasers. It was demonstrated that catastrophic degradation occurs for average light energy flux densities $(2-4) \cdot 10^6$ watts/cm² and local densities of 10^7 watts/cm². Depending on the light energy flux density the service life of the heterolasers can vary from several minutes to 100 hours and more; catastrophic degradation in this case is the limiting case of slow degradation under the effect of radiation. Heterolasers with a radiation power in the pulse of ≥ 10 watts, a frequency of 6 kilohertz, and a pulse duration of 100 nanoseconds are capable of operating more than 100 hours without a significant reduction in power.

1/1

USSR

UDC: 681.3.06:51

CHERNOUSOV, Ye. A.

"Data Transformation in the Generation of Records"

Tr. Mosk. ekon. s'tat. in-ta (Transactions of the Moscow Economics Statistics Institute) Part 1, 1973, pp 137-145 (from RZh--Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 12, 1973, Abstract No 12B142)

Translation: Transformations of arrays of initial data, divided into two groups, are described. The first group includes those transformations connected with the reordering of the data in the original array and with the accumulation of the results of the various steps; the second includes the transformations through which data are prepared for printing the record.

The first group of transformations is known as the generation of totals; the second is known as the generation of lines. The block diagram of an algorithm for comparing the figures of the records and the algorithm for formation of the totals is given. Transformations of the data realized in the record generation system for the "Minsk-22" computer are described. Six illustrations, bibliography of one. V. Kh.

1/1

- 16 -

USSR

CHERNOUSOV, Ye. A.

"Combinatorial Capabilities of a Report-Generating System"

Materialy Mezhevuz. Konf. po Mat. Obespecheniyu Avtomatizir. Sistem Upr.
[Materials from Interuniversity Conference on Automatic Control Systems
Software -- Collection of Works], Moscow, 1973, pp 130-139 (Translated from
Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V706).

Translation: A method is described for generation of reports for the
production of all possible versions of reports without programming by
changing the content of the control information. The control apparatus
of the generating device allows a set of permissible report versions to be
produced, thus achieving high adaptability of the system to user needs.
The process of report generation consists of two types of transformations
of the initial data: generation of results and generation of rows. The
generation of results provides the necessary structure of the report to be
written. To do this, the initial data are placed in the proper sequence and
the results are accumulated. The generation of rows converts the headings
of the report and prints the required report information.

V. Mikheyev

1/1

USSR

UDC 539.37

PRESNYAKOV, A. A., BEGIMOV, T., MELIKHOV, V. D., and ~~CHERNOUSOVA, K. T.~~
(Editors)

Vliyaniye predvaritel'noy deformatsii na svoystva metallov i splavov (Effect of Preliminary Deformation on the Properties of Metals and Alloys), Collection of Papers, Alma-Ata, "Nauka" Press, 1971, 135 p., illustrations, graphs, tables, 1500 copies printed.

Translation of Annotation:

The papers in this collection deal with studies on the effect of preliminary plastic deformation on the properties of copper, aluminum, nickel, tin, and alloys including eutectic and eutectoid compositions. The papers offer new data on the specific characteristics of changes in plasticity, strength and structure of the above materials. These characteristics become apparent following plastic deformation-induced activation of phase and structural transformations and consist in the development of rheotropic recovery-type phenomena, superplasticity, and transformation of thermal brittleness zones. The papers reflect data on the influence of stretching rates of specimens and their state on the development of these effects. The results of the studies are of interest for the theory of metal alloys, their treatment techniques, and uses. The collection is intended for scientific personnel of institutes and engineers of metal working plants, graduate students, and metallurgical students.

Translation of Table of Contents:
1/5

USSR

PRESNYAKOV, A. A. (Ed.) et al., Vliyaniye predvaritel'noy deformatsii na svoystva metallov i splavov, "Nauka" Press, 1971, 135 pp

Chervyakova, V. V. Effect of Chromium and Zirconium on Copper Plasticity	3
Aubakirova, R. K. Development of Superplasticity Following Pre-straining of the Cast Eutectoid Aluminum-Zinc	7
Chernysheva, Yu. P. Effect of Straining Rate on Copper Plasticity	14
Aubakirova, R. K., Presnyakov, A. A., and Karpenyuk, A. N. Changes in Flow Curves of the Superplastic Al-Zn Alloy With Temperature	18
Tokseitova, R. K., Chernousova, K. T. and Baimbetov, N. Effect of Pre-straining on the Decomposition of α -Solid Solution of the Cu-Sn System	27
Kagasova, L. Ya (deceased) and Presnyakov, A. A. Effect of Pre-straining on the Plasticity of Tin-Lead alloys	32

2/5

USSR	
PRESNYAKOV, A. A. (Ed.) et al., Vliyaniye predvaritel'noy deformatsii na svoystva metallov i splavov, "Nauka" Press, 1971, 135 pp.	
Chasnikov, A. Ya. Effect of Pre-straining on the Mechanical Properties of Oxygen-Free Copper and Some of Its Alloys	39
Kuz'min, V. G., Chernousova, K. T., and Ismagulova, M. A. Effect of Additions on the Formability of LS64-2 Brass	44
Azhibayeva, S. M., Presnyakov, A. A. and Duysemaliyev, U. K. The Influence of Small Mg Additions on the Superplasticity of the Al-Zn Eutectoid	48
Presnyakov, K. A., Alimanova, R. B., and Volkogon, G. M., Effect of the Stretching Rate on the Plasticity of Cold Worked (after Hot Rolling) Commercial-Grade Nickel	54
Chasnikov, A. Ya. and Chervyakova, V. V. Superplasticity of Strained α -Brass and Pure Copper	62
Sakbayeva, N. N. Changes in Interdiffusion Parameters of Cu and Ni as a Function of the Amount of Preliminary Plastic Deformation	65
3/5	
- 34 -	

USSR

PRESNYAKOV, A. A. (Ed.) et al. Vliyaniye predvaritel'noy deformatsii na svoystva metallov i splavov, "Nauka" Press, 1971, 135 pp.

Chernysheva, Yu. P. and Alimanova, R. B. Aging of High-Purity Copper	70
Soymin, N. Ya. Analysis of Motion Picture Films of Tensile Tests on Lead Specimens	75
Soymin, N. Ya. Characteristics of the Development of Localized Deformation of Lead Following Tensile Tests	80
Presnyakov, K. A. The Accuracy of Measuring the Characteristic Curves of the Mechanical Properties of Metals and Alloys	85
Soymin, N. Ya., and Presnyakov, A. A. Methods of Plotting True Deformation Diagrams	88
Chernousova, K. T. and Morozov, G. P. Mechanical Properties of Cast OIS4-3 Bronze	91

4/5

USSR

PRESNYAKOV, A. A. (Ed.), et al., Vliyaniye predvaritel'noy deformatsii na svoystva metallov i splavov, "Nauka" Press, 1971, 135 pp.

Vil'ms, G. F., Mironenko, Yu. P. and Poznyak, E. L. Automatic Compensation With an Inverse Strain-Gage Converter

96

Dzhangirov, E. V., Svidenko, V. N., and Shul'kin, V. Ya. Methods of Determining Slip and Adhesion Zones Following Plastic Deformation by Rolling

100

Svidenko, V. N., Grekov, A. M., and Shkarlet, V. I. Study of Plastic Friction by the Metal Displacement Method

111

Kurapov, G. G., and Poznyak, E. L. The Flow-in of Specimen Metal in the Free Hole in Open Upsetting

117

Mironenko, Yu. P., Poznyak, E. L., and Vil'ms, G. F. Portable Device for Metal Hardness Determinations

120

Polyukhov, V. V. Effect of Microalloying With Cerium on the Fracture Quality of Hull Steels

126

5/5

- 35 -

USSR

UDC: 621.317.335.3

SEREBRYAKOVA, S. G., CHERNOUSOVA, N. I.

"Effect of Radiation And the Transforming Properties of the Holder on the Accuracy of Ferrite Permittivity Measurements"

Tr. Sib. NII metrol. (Works of the Siberian Scientific Research Institute of Metrology), 1971, vyp. 12, pp 77-82 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A304)

Translation: The paper discusses errors in ferrite permittivity measurements due to the radiation and transforming properties of the holder. Formulas are presented for calculating the permittivity of ferrites from the change in oscillator frequency with regard to these errors. Resumé.

1/1

- 90 -

USSR

UDC: 621.396.6.017.7

ZIMA, A. A., CHERNOUSOV, L. P., CHERNOUSOVA, N. N.

"An Automatic Device for Controlling and Measuring the Temperature in a Hot-and-Cold Box"

Tr. Sib. NII metrol. (Works of the Siberian Scientific Research Institute of Metrology), 1971, vyp. 12, pp 98-102 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V284)

Translation: The paper describes a device for controlling and measuring the temperature in a hot-and-cold box in ranges of 0-600°C and -50-100°C with an accuracy of 0.5 percent of the range of a type EPV2-11A potentiometer. Resumé.

1/1

USSR

UDC: 621.317.335.3

CHERNOUSOVA, N. N.

"On the Error in Determination of Complex Permittivity of Standard Ferrite Specimens on High Frequencies"

Tr. Sib. NII metrol. (Works of the Siberian Scientific Research Institute of Metrology), 1971, vyp. 12, pp 45-52 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A299)

Translation: The paper analyzes errors in ferrite permittivity measurement which are due to the device for connection of the specimen -- a coaxial line. In this connection, the following problems are considered: choice of optimum line length, determination of the degree of transformation of measurement quantities, the effect of losses in the line itself and the effect of magnetic parameters on measurement of the total permittivity. Computational formulas are presented. Resumé.

1/1

USSR

UDC: 621.317.335.3

CHERNOUSOVA, N. N. CHERNOUSOV, L. P.

"An Instrument for Measuring the Dielectric Parameters of Ferrites in the 1-100 MHz Frequency Range"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 150-151 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A357)

Translation: The authors describe an instrument for measuring the relative permittivity and loss tangent of ring-shaped ferrites and dielectrics in the 1-100 MHz range. The device is designed around the oscillator method. The self-excited oscillator which is the fundamental element of the instrument operates on a bar tube connected in a three-point inductive circuit. The measurements are made by the two-balance method (with and without the specimen). The specimen is placed in a coaxial cell which is an element in a tank circuit. The permittivity can be measured only from the change in capacitance of the reference capacitor. One illustration. N. S.

1/1

- 87 -

1/3 025 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--MAN AMPHIBIA? A REAL POSSIBILITY -U-
AUTHOR--CHERNOV, A. C
COUNTRY OF INFO--USSR
SOURCE--SPUTNIK, 1970, NR 3, PP 35-41
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BREATHING, WATER, CHLORELLA, PHOTOSYNTHESIS, OXYGEN,
UNDERWATER PHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3007/1341 STEP NO--UR/0738/70/000/003/0035/0041
CIRC ACCESSION NO--AP0136714
UNCLASSIFIED

2/3 025

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136714

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SCIENTISTS OF VARIOUS COUNTRIES HAVE SET ABOUT TO REALIZE ONE OF THE MOST DARING PROJECTS OF OUR TIME THE CREATION OF A MAN AMPHIBIA, WHO MIGHT ONE DAY BECOME THE MASTER OF OCEAN DEPTHS. INVESTIGATIONS TO THAT END ALSO ARE BEING CARRIED OUT IN THE SOVIET UNION. STUDIES HAVE SHOWN THAT THE LUNGS OF MAMMALS CAN, LIKE BRANCHIA, EXTRACT OXYGEN FROM WATER. NORMALLY, ONE LITER OF WATER CONTAINS 7 CCM DISSOLVED OXYGEN. WHILE THIS RATIO IS SUFFICIENT FOR FISH THE ANIMALS NEED WATER WITH AT LEAST 10 TIMES AS MUCH OXYGEN DISSOLVED IN IT. AT AN EXCESSIVE PRESSURE OF 20 ATM, WATER CAN DISSOLVE ABOUT AS MUCH OXYGEN AS IS PRESENT IN THE AIR (2 PERCENT). BUT IT HAS TO BE SEA, OR SALTY, WATER. ANIMALS WHICH INHALED FRESH WATER DEVELOPED THROAT HEMMORRHAGE, AND DIED. AS IT TURNED OUT, FRESH WATER, COMING IN CONTACT WITH BLOOD IN THE LUNGS, WASHES OUT THE SALTS CONTAINED IN IT. THE SALT FREE BLOOD, HOWEVER, CANNOT SUPPORT THE NORMAL ACTIVITY OF AN ORGANISM. THE LUNGS CEASE TO ABSORB OXYGEN, AND DEATH OCCURS. SINCE WATER IS 100 TIMES AS DENSE AS AIR, "LIQUID RESPIRATION" WOULD REQUIRE MUCH MORE ENERGY. HOWEVER, THIS IS NOT AN INSURMOUNTABLE OBSTACLE MILLIONS OF YEARS AGO, MAN ASCENDED FROM THE SEA, AND TODAY, WILL STILL BEAR WITNESS TO OUR ASCENT: THE BLOOD PLASMA HAS THE SAME SALT COMPOSITION AS THE SEA WATER. THE DAY MAY NOT BE FAR AWAY, WHEN EXPERIMENTS WITH HUMANS INHALING WATER WILL BE UNDERWAY. THE ONE CELLED FRESH WATER ALGAE CHLORELLA, WHICH PRODUCES PROTEINS, FATS, AND VARIOUS VITAMINS, WILL BE PUT TO USE AS THE SUPPLIER OF OXYGEN. AN EXPERIMENT WAS CARRIED OUT WITH AN ALBINO MOUSE.

UNCLASSIFIED

3/3 025

CIRC ACCESSION NO--AP0136714

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--THE ANIMAL WAS PLACED IN A CHAMBER CONTAINING CHLORELLA, WHERE IT LIVED FOR 66 DAYS. WITHOUT CHLORELLA, IT WOULD NOT HAVE SURVIVED A FEW HOURS. DURING THIS TIME THE AMOUNT OF OXYGEN IN THE CHAMBER INCREASED FROM 21 TO 63 PERCENT. A SIMILAR EXPERIMENT WAS RECENTLY PERFORMED ON A HUMAN BEING. GALINA M., A STAFF MEMBER OF A SIBERIAN INSTITUTE, SPENT A WHOLE MONTH IN AN ISOLATED CABIN; THE OXYGEN NEEDED FOR RESPIRATION WAS SUPPLIED BY CHLORELLA, WHICH ABSORBED THE EXHALED CO SUB2 AND, THROUGH THE PROCESS OF PHOTOSYNTHESIS, SPLIT OFF OXYGEN FROM IT AND EMITTED IT INTO THE SURROUNDING MEDIUM. NO AIR PURIFICATION DEVICE WAS NEEDED. STRONGLY ENOUGH, CHLORELLA REACTED TO MAN'S BEHAVIOR: WHENEVER GALINA FELL ASLEEP, THE CYCLE OF ITS ACTIVITY SLOWED DOWN. IT IS SUGGESTED THAT, IN THE NEAR FUTURE, THESE EXTRAORDINARY ALGAE WILL RELIEVE THE CREW OF THE NEED FOR UNDERWATER HOUSES FROM BULKY STEEL CYLINDERS HOLDING THE GAS MIXTURE, AND FROM AIR PURIFICATION APPARATUS. THE SUCCESSFUL LIBERIAN EXPERIMENT IS SAID TO HAVE OPENED FOR CHLORELLA THE DOOR INTO COSMIC AND HYDRO-COSMIC SPACE.

UNCLASSIFIED

USSR

UDC 621.317.33.089.6

PAVLENKO, YE. S., ~~CHERNOV, A. M.~~, SHIGORIN, V. P.

"Transition Standard Measures of Electrical Resistances for 10^4 to 10^9 Ohms"

Tr. metrol. in-tov SSSR (Works of the USSR Metrology Institutes), 1971, No 115 (175), pp 18-28 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 10, Oct 71, Abstract No 10.32.1412)

Translation: A description of the R4080-R4083 transition standard and recommendations with respect to the possibility of using them to transmit the upper values of a unit of electrical resistance from standards and standard measures of 10^4 and 10^5 ohms to standards and standard measures of 10^6 - 10^8 ohms are given. There are 10 illustrations 2 tables and a 5-entry bibliography.

1/1

- 158 -

CHEKNOV, A. A.

SPNS 57214
L JWC 1473

THE GROWTH OF CRYSTALS

(Conference in Tsakhkadzor)

Article by Doctor of Physical and Mathematical Sciences A. A. Cheknoy, Moscow, Volynsk Akademi Nauk SSSR, Russian, No. 4, April 1973, pp 65-87

About 400 specialists, including 80 from abroad, participated in the Fourth All-Union Conference on the Growth of Crystals, held in Tsakhkadzor, near Yerevan, on 17-27 September 1972. The program of the Conference included about 170 papers devoted to fundamental problems of crystallization, the growth of crystals and their perfection. Those three closely connected directions also constituted the bulk of its theme.

The Conference was opened with the lecture of N. V. Belic on the reactive characteristics of silica. The most senior of Soviet crystallographers defended the validity of concepts of the participation in processes of the growth of crystals, not of silicon-oxygen tetrahedra, but of SiO₂ molecules. B. K. Vaynshteyn, in a lecture on problems in studying the structure and functions of crystals of proteins, discussed in particular a new method proposed by him for reconstructing the three-dimensional structure on the basis of electron microscopic photographs made in different projections. A completely new direction in the theory of crystallization -- the quantum theory of nucleation -- was discussed in the lecture of the initiators of that direction, I. M. Viskits and Yu. M. Kagan. It was a matter of application of the potential barrier of nucleation through quantum tunneling. A stimulus for tunneling is the kinetic energy of motion of particles of the medium in the direction of the nucleus with the least specific volume, or in the reverse direction if the specific volume of the new phase is larger than that of the old. The estimates made have made it possible to point out the conditions for preservation of the metastable phase, including that of metallic hydrogen.

USSR

CHERNOV, A. A. (Reviewer)

Al'manakh "Sportsmen-Podvodnik" (The Underwater Athlete's Almanac), Moscow, DCSAAF Publishing House, No 25, 1971

Moscow, Priroda, No 11, 1971, pp 114-115

Abstract: The Underwater Athlete's Almanac, the only specialized publication of its kind in the USSR, was issued last year (1971) in a 25th anniversary edition and covers a wide range of subjects discussed by experts. It includes a history of SCUBA diving in the USSR and abroad, tells about international and all-union contests, describes the scientific and esthetic values of the sport, provides practical advice on underwater photography and motion pictures, and describes major discoveries of underwater archaeologists. Considerable attention is devoted to safety precautions. The section on underwater swimming techniques and physiology is written for experienced divers as well as novices. Some of the experiments under way in the Soviet Union and elsewhere on the creation of "human amphibians" are described.

1/1

1/2 031 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--GROWTH OF COPOLYMER CHAINS AND MIXED CRYSTALS: STATISTICS OF TRIALS
AND ERRORS -U-
AUTHOR--CHERNOV, A.A.
COUNTRY OF INFO--USSR
SOURCE--USD. FIZ. NAUK 1970, 100(2), 277-328
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CRYSTALLINE POLYMER, MATHEMATIC MODEL, CHEMICAL KINETICS,
CRYSTAL GROWTH, DIGITAL COMPUTER

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/2003 STEP NO--UR/0053/70/100/002/0277/0328
CIRC ACCESSION NO--AP0125502
UNCLASSIFIED